



# CATALYSTS AND PROCESSES FOR THE SYNTHESIS OF ALTERNATING ETHYLENE/ $\alpha$ -OLEFIN COPOLYMERS, AND ISOTACTIC COPOLYMERS THEREOF

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## Abstract of WO9902569

Catalysts, catalyst systems and processes for production of alternating copolymers of ethylene and  $\alpha$  olefins, and to novel classes of atactic and isotactic alternating copolymers of ethylene and  $\alpha$  olefins, which copolymers include a wide range of crystallinity and exhibit commercially useful properties. Appropriate selection of ligand substituents permit the catalysts to be symmetric or assymmetric, resulting in atactic, or isotactic or atactic, respectively, alternating copolymers of ethylene with  $\alpha$  olefins. The novel class of bridged fluorenyl metallocene catalysts of the invention is assymmetric structural form interconvert between states during polymerization of ethylene with  $\alpha$  olefins to produce alternating isotactic or atactic copolymers. Exemplary metallocene components of the inventive catalyst systems comprised bridged cyclopentadienyl-fluorenyl complexes of general formula (1), in which: M is a Group 3,4 or 5 Transition metal, a Lanthanide or an Actinide; X and X' are the same or different uninegative ligands; L is a substituted or unsubstituted cyclopentadienyl (Cp) or indenyl ligand; Flu is a substituted or unsubstituted fluorenyl ligand; and Y is a bridging group. When the Cp ligand is symmetric, atactic alternating E/  $\alpha$ -olefin copolymers are produced and when the Cp ligand is assymmetric, alternating isotactic or atactic E/  $\alpha$ -olefin copolymers are produced.

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